

### **Amendments to the Claims**

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

#### **Listing of claims:**

1. **(currently amended)** A method for performing mobile IPv6 fast handover based on an access router (AR), comprising the steps of:

a) when a mobile node (MN) completes a layer 2 handover, a new access router (AR) receiving a modified Router Solicitation (RS) message **directly** from the mobile node (MN);

b) detecting layer 3 movement of the mobile node (MN) at the new access router (AR) based on the received modified RS message transmitted from the mobile (MN) node to the new access router (AR);

c) when the mobile node (MN) does layer 3 movement, the new access router (AR) generating a new Care of Address (CoA) for **transmission to** the mobile node (MN) **and for use as the network interface address of the mobile node (MN)**;

d) performing Duplicate Address Detection (DAD) at the new access router (AR) to inspect uniqueness of the generated CoA; and

e) transmitting a modified Router Advertisement (RA) message, which corresponds to the modified RS message transmitted from the mobile node (MN), **directly** to the mobile node (MN) from the new access router (AR).

2. (previously presented) The method as recited in claim 1, wherein the step a) includes the steps of:

a1) receiving a reassociation request message from the mobile node (MN) at an access point; and

a2) transmitting a reassociation reply message corresponding to the reassociation request message to the mobile node (MN) from the access point.

3. **(currently amended)** The method as recited in claim 1, further comprising:

**a3)-f)** receiving the modified RA message transmitted from the access router (AR), using the CoA specified in the modified RA message transmitted from the access

router (AR) as a network interface address of the mobile node (MN) without DAD, and performing binding update at the mobile node (MN).

4. (previously presented) The method as recited in claim 1, wherein, in the step a), the access router (AR) receives the modified RS message from the mobile node (MN) as soon as the layer 2 handover is completed at the mobile node (MN).

5. (previously presented) The method as recited in claim 4, wherein, the step b), the movement of the mobile node (MN) in the layer 3 is detected at the access router (AR) by comparing a neighbor cache value of the access router (AR) and a layer 2 identifier of the mobile node (MN) included in the modified RS message, which is transmitted from the mobile node (MN).

6. (previously presented) The method as recited in claim 5, wherein the modified RS message includes a flag which signifies the generation of the CoA (CoA Generate).

7. (previously presented) The method as recited in claim 6, wherein the modified RA message includes a flag which signifies the generation of the CoA (CoA Generate).

8. (**currently amended**) The method as recited in claim 7, wherein the modified RA message includes the CoA which is generated by the access router (AR) in the step c).

9. (original) The method as recited in claim 8, wherein the modified RA message includes a flag which signifies that the CoA is included in a prefix.